

ENTOMOLOGY.—*The orchid bugs of the genus Tenthecoris Scott (Hemiptera: Miridae).*¹ TSAI-YU HSIAO, Nankai University, Tientsin, China, and REECE I. SAILER, U. S. Bureau of Entomology and Plant Quarantine. (Communicated by PAUL W. OMAN.)

For many years plant quarantine inspectors at the various United States ports have been intercepting large numbers of plant bugs of the family Miridae on Orchidaceae imported from Neotropical areas. Because of the absence of any comprehensive work treating the group of species involved, the identification of this intercepted material has been extremely inaccurate. This paper has been written in an effort to improve this situation and to provide names for several species not before described.

The genus *Tenthecoris* was established in 1886 by Scott (8, pp. 64–66). Previously, in 1860, Stål (9, pp. 57–58) had established the genus *Eccritotarsus* and included 15 species from Rio de Janeiro. This was found by Reuter and Bergroth to be a composite genus, and subsequently all the species, with the exception of *E. semiluteus*, were transferred to other genera.² Meanwhile, the existence of *Eccritotarsus* undoubtedly delayed recognition of Scott's genus *Tenthecoris*.

The genus *Tenthecoris* contains colorful bugs of medium size. *T. bicolor* Scott, as the only originally included species, is the genotype. *Tenthecoris* may be separated from *Eccritotarsus* and other related genera by the following combination of characters: Pronotal collar incomplete; rostrum long, attaining or surpassing apex of posterior coxa, third and fourth segments very short, together distinctly shorter than one-half the length of second segment (except in *distinctus* and *balloui*, n. spp.); antennal segment II of moderate length, not twice as long as I.

The bicolorous combination of orange to yellow with black to caerulescent black seems characteristic of the genus. Judged from the material studied the color pattern

for each species is remarkably stable. The male genitalia are conspicuous and provide valuable characters for distinguishing species.

The oldest named species now included in *Tenthecoris* is *generosus*, a Mexican species that was described by Stål (10, p. 323) as an *Eccritotarsus* in 1862. Distant described *E. vestitus* in 1884 from Guatemala (2, p. 284) and *E. exitiosus* in 1889 from Trinidad (3, p. 202). Both species belong to *Tenthecoris*. In 1902 Reuter (5, p. 157) described *E. orchidearum* from Brazil and noted its similarity to *E. vestitus* and *E. exitiosus* of Distant without mentioning the genus *Tenthecoris*. Distant (4, p. 202) was the first to recognize *Tenthecoris* when in 1904 he published the following statement: "*Tenthecoris*, Scott is very closely allied to *Eccritotarsus*, Stål. It is described as an orchid pest, as is also *Eccritotarsus exitiosus* Distant and *E. orchidearum* Reuter. *T. bicolor* is very closely allied by description to Reuter's species."

In 1907 Reuter (6, p. 253) appears to have first become aware of the identity of *Tenthecoris bicolor*. At this time he synonymized *E. orchidearum* (synonymy is question in discussion for *T. bicolor*, p. 70) with *T. bicolor* and transferred *E. generosus* Stål (7, p. 154) to *Tenthecoris*.

In 1942 Costa Lima (1, p. 100) published a review of the literature pertaining to *T. bicolor* and provided illustrations suitable for its identification. As noted above, Distant had remarked that *exitiosus* was "very closely allied by description"; however, Costa Lima was the first to use the combination *Tenthecoris exitiosus*.

Thus it is seen that prior to the present paper *Tenthecoris* contained three species, viz., *bicolor* Scott, *exitiosus* (Distant), and *generosus* (Stål). One additional species, *Eccritotarsus vestitus* Distant is here transferred for the first time to *Tenthecoris*. Seven additional species, which we believe to be new, have been found in the collection of

¹ Received November 18, 1946.

² In a paper by the senior author (Proc. Ent. Soc. Washington 49(2): 59–62, 1947) it is pointed out, however, that seven of Stål's original species must remain in *Eccritotarsus*.

Neotropical Miridae in the United States National Museum. These new species are described below. It is regretted that the locality data on many of the specimens are incomplete. In all instances the data are believed to be accurate so far as they are available; however, it is seldom that more than the country is provided. This study is primarily based on material intercepted in quarantine and, while the locality data in many cases are of necessity general, host data are usually complete.

***Tenthecoris confusus*, n. sp.**

Figs. 5, 19

Male.—Body ovate, length 4.6 mm, width 2.19 mm, reddish, with antennae, tibiae, scutellum, and inner half of hemelytra dark (dark area on dorsum with bluish luster), clothed densely with short simple flavous pubescence.

Head subvertical, width across eyes 1.12 mm, length seen from above 0.39 mm, height seen from side 0.9 mm; vertex somewhat flat, width 0.69 mm, frons slightly convex, clypeus moderately prominent, discrete from frons just below line drawn between the bases of antennae, apical one-third dark. Eyes not touching apex of pronotum, seen from side reniform, occupying nearly one-half the height of head. Rostrum length 1.75 mm, surpassing apex of posterior coxa, length of segments, I:II:III:IV::0.67 mm:0.73 mm:0.21 mm:0.13 mm, segment I thickest, II slenderer, compressed, III thicker than II, IV somewhat cone-formed.

Antennae dark, linear, inserted near apex of interior margin of eye, length of segments, I:II:III:IV::0.68 mm:0.85 mm:0.60 mm:0.7 mm, segment I gradually thickened toward apex, II linear, as thick as I at middle, III much slenderer than II, IV slenderer than III, extreme base of I, III and IV luteous.

Pronotum finely punctate, length 0.88 mm, width at base 1.59 mm, at apex 0.83 mm, apical margin slightly sinuate, lateral margin strongly impressed behind callus, posterior margin nearly straight or very slightly sinuate before scutellum, humeral angle broadly rounded. Scutellum triangular, with a large triangular depression at base, dark, extreme base reddish, length 0.56 mm, width at base 0.6 mm, mesoscutum reddish.

Hemelytra smooth, embolar margin convex,

thickened, length 2.15 mm, corium with inner angle broadly dark, exterior margin of the dark area forming a straight line subparallel to embolar margin, clavus dark (except basal one-fourth), cuneus declivent, length 0.86, width at base 0.73 mm, membrane dark, finely rugulose, apical margin luteous.

Gula, xyphus, anterior portion of propleura, metapleura, and posterior coxa tending to luteous. Legs comparatively short, length of posterior femur 1.51 mm, posterior tibia 1.72 mm, all tibiae dark, tarsi pale tending to fuscous at apex.

Male genitalia distinct, with a broad central portion, bearing a spinose process on left apical angle and a larger armlike process on right apical angle, the latter process turned abruptly downward at apical third; right paramere broad and long, with a tubercle at apical one-third, apex broadened, spoon-formed.

Female.—Similar to male in size and coloration, second antennal segment shorter than that in male. Body length 4.99 mm, width 2.32 mm; width of head across eyes 1.16 mm, width of vertex 0.65 mm; length of antennal segments, I:II::0.69 mm:0.86 mm (II and IV missing).

This species is closely related to *vestitus* (Distant); however, the male genitalia and the dorsal coloration readily separate them.

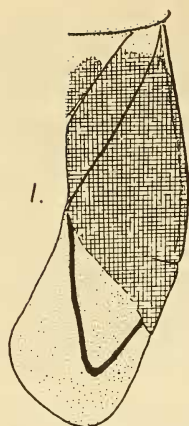
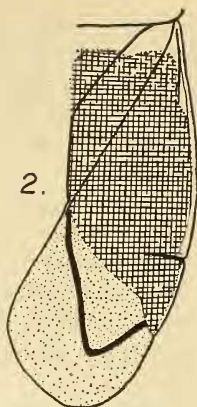
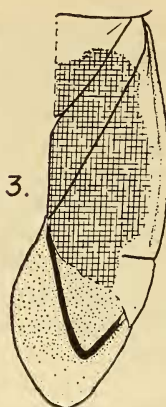
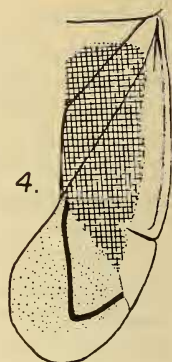
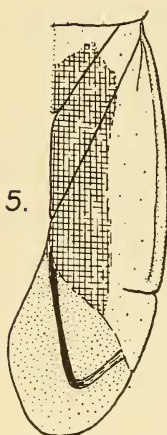
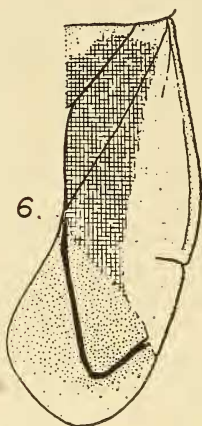
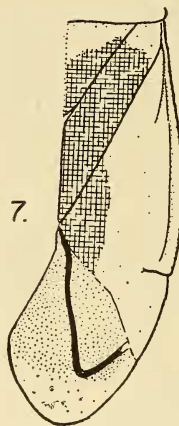
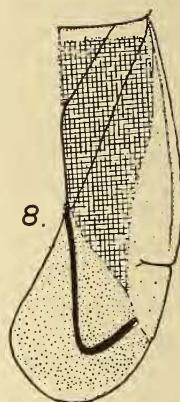
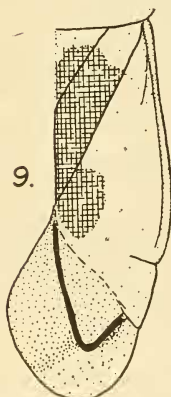
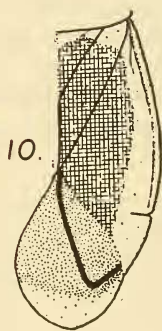
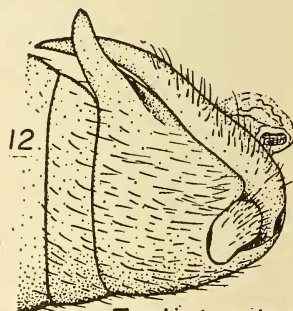
Type material.—Holotype: Male, Mexico, on orchids, intercepted at Washington, D. C., September 6, 1939, U.S.N.M. no. 58156. Allotype: Female, Mexico, on orchids, intercepted at San Francisco, Calif., May 13, 1938. Paratypes: Veracruz, Mexico, May (1). Guatemala, on *Cattleya*, intercepted at San Francisco, September 1, 1938 (1). Costa Rica, in packing of orchids, intercepted at Washington, D. C., October 4, 1933 (1). Venezuela, on *Cattleya*, intercepted at Hoboken, N. Y. (1).

***Tenthecoris angustimarginatus*, n. sp.**

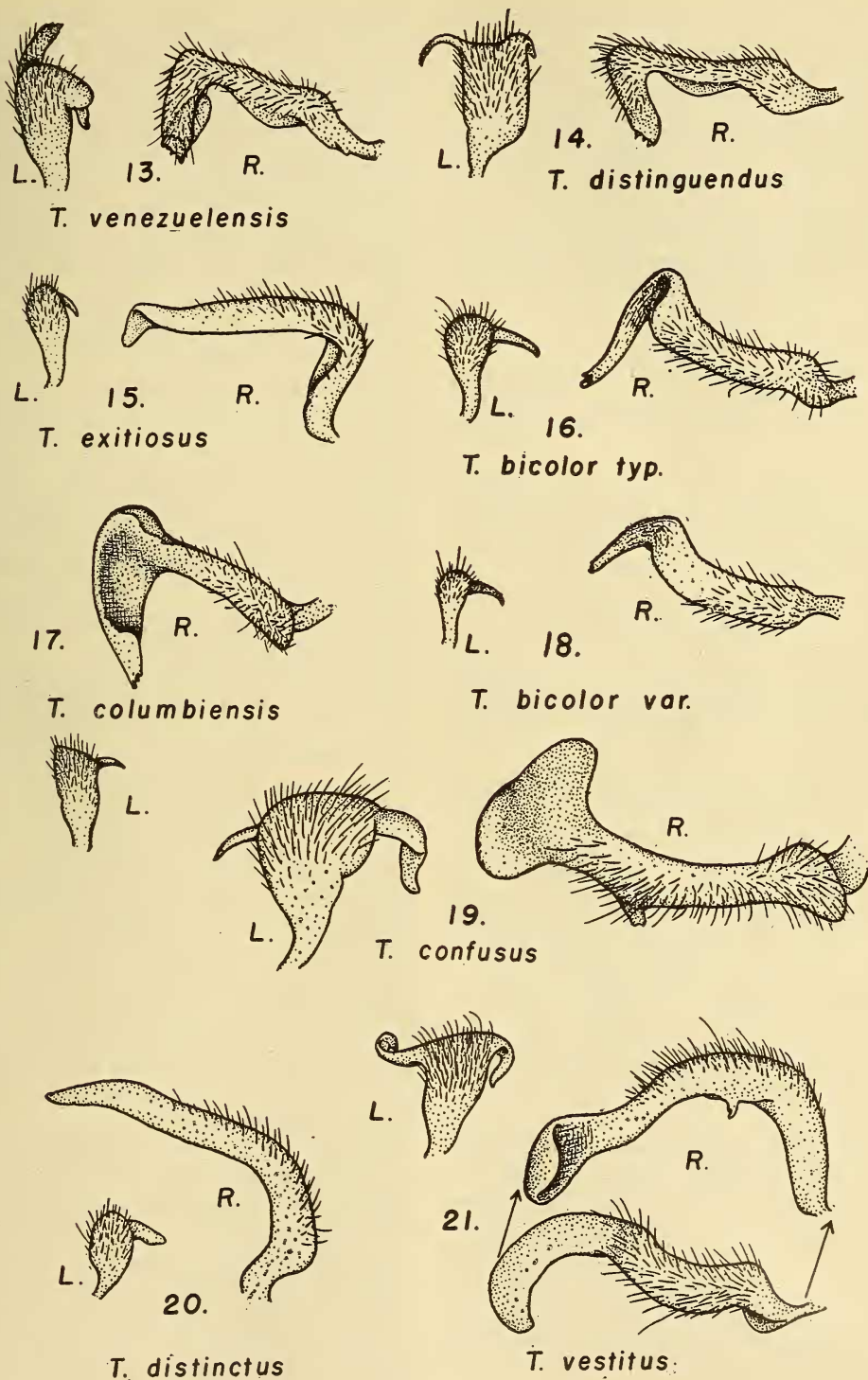
Fig. 2

This species is similar in appearance to *T. exitiosus* (Distant) but can be distinguished by the brownish-red costal margin of the corium and by the relatively shorter second antennal segment.

Female.—Length 4.35 mm, width 2.17 mm. Antennae and tibiae black; scutellum, except for median triangular area, and corium, except for narrow margin along costa, black with violaceous reflections; membrane concolorous,

*T. exitiosus**T. angustimarginatus**T. bicolor typ.**T. bicolor var.**T. confusus**T. distinguendus**T. venezuelesis**T. vestitus**T. columbiensis**T. distinctus**T. balloui**T. distinctus*
Left lateral view
of 9th segment ♂

FIGS. 1-11.—Indications of the color pattern of the hemelytra and the scutellum in species of *Tenthecoris*. FIG. 12.—As indicated.



FIGS. 13-21.—Left (L) and right (R) parameres in species of *Tenthecoris*. In each case an outside view (relative to normal position on the ninth segment) is shown. In the case of Fig. 21 a lateral view of the right paramere is also shown.

dark; remainder of body reddish brown to ochraceous.

Head, width across eyes 1.12 mm, length seen from above 0.42 mm, height seen from side 0.91 mm; vertex width 0.7 mm, slightly convex. Rostrum surpassing apex of hind coxae, length of segments, I:II:III:IV::0.84 mm:0.73 mm:0.21 mm:0.14 mm. Antennae black except extreme base of segment I, apical three segments becoming somewhat lighter; length of segments, I:II:III:IV::0.64 mm:0.73 mm:0.49 mm:0.56 mm.

The structural affinities of the female specimens indicate close relationship to *vestitus*; however, examination of the male genitalia will be necessary to establish this association definitely.

Type material.—Holotype: Female, Tamaunchale, San Luis Potosí, Mexico, intercepted at Laredo, Tex., August 10, 1946, on orchids, U.S.N.M. no. 58157. Paratype: Same data (1).

***Tenthecoris distinguendus*, n. sp.**

Figs. 6, 14

Male.—Body reddish ochraceous, with dark markings and pubescence similar to those in *confusus*, n. sp.; length 4.73 mm, width 2.32 mm.

Head width across eyes 1.12 mm, length seen from above 0.43 mm, height seen from side 0.86 mm; vertex width 0.69 mm, compared with *confusus* the vertex is more convex, frons less convex and the clypeus with base lower and darker at apex. Rostrum reaching apex of posterior coxa, length of segments, I:II:III:IV::0.77 mm:0.7 mm:0.21 mm:0.14 mm.

Antennae, length of segments, I:II:III:IV::0.65 mm:0.85 mm:0.47 mm:0.47 mm, entirely dark except extreme base of I. Length of posterior femur 1.51 mm, tibia 1.72 mm, tarsi fuscous.

Male genitalia distinct, right paramere bent at right angle at middle, broader at base, left paramere short, left process long; left margin of ninth abdominal segment strongly impressed to receive the apical portion of right paramere.

Female.—Similar to male. Body length 4.6 mm, width 2.37 mm. Width of head across eyes 1.19 mm, width of vertex 0.65 mm. Length of antennal segments, I:II:III:IV::0.7 mm:0.86 mm:0.56 mm:0.49 mm.

Structurally this species is closely related to *venezuelensis*, n. sp.; however, the color pattern

resembles that of *confusus*, n. sp. As indicated in the key the shape of the lateral basal angles of the dark area on the scutellum and hemelytra provides the most apparent difference.

Type material.—Holotype: Male, San Pedro de Montes de Oca, Costa Rica, October 19, 1935, by S. and C. Ballou on *Epidendrum* sp., U.S.N.M. no. 58162. Allotype: Female, same data. Paratypes: Same data (4). Same locality, collected December 7, 1935, by C. H. Ballou (1).

***Tenthecoris venezuelensis*, n. sp.**

Figs. 7, 13

Male.—Body ovate, length 4.04 mm, width 2.02 mm, ochraceous, with dark markings on dorsum similar to those on *confusus*, n. sp., but occupying less area on the corium, this area restricted to the inner apical angle of the corium, not extending basally beyond apical third of the claval suture; exterior margin not forming a straight line. Legs entirely (except tip of third tarsal segment) and basal two-fifths of antennal segment I pale.

Head, width across eyes 10.8 mm, length seen from above 0.3 mm, height seen from side 0.77 mm; vertex width 0.65 mm, slightly convex; frons a little less convex than that on *distinguendus*, n. sp. Rostrum reaching apex of posterior coxa, length of segments, I:II:III:IV::0.63 mm:0.7 mm:0.21 mm:0.3 mm.

Antennae dark except basal two-fifths of segment I, length of segments, I:II:III:IV::0.56 mm:0.57 mm:0.49 mm:0.5 mm.

Male genitalia similar to those of *distinguendus*, n. sp.

Female.—Similar to male, body length 4.39 mm, width 2.15 mm. Width of head across eyes 1.08 mm, width of vertex 0.68 mm. Length of antennal segments, I:II:III:IV::0.56 mm:0.69 mm:0.47 mm:0.56 mm.

This species is very close to *bicolor* Scott but can be distinguished by its pale tibiae, more restricted dorsal coloration, and different structure of male genitalia.

Type material.—Holotype: Male, Venezuela, December 1918, collected by H. Pittier on orchids, U.S.N.M. no. 58158. Allotype: Female, same data. Paratypes: Same data (9). Caracas, Venezuela, May 27, 1941, collected by C. H. Ballou on *Cattleya labiada* (5). Caracas, Venezuela, intercepted at Washington, D. C., September 1933, on *Cattleya* plants (4). El Valle,

Venezuela, May 27, 1941, collected by C. H. Ballou on *Cattleya labiada* (1). Venezuela, intercepted at Washington, D. C., on orchids: 1933, December 8 (1); 1934, October 19 (2); 1936, June 19 (3), August 1 (6); 1937, May 28 (1), June 14 (1), July 7 (2), 15 (2), August 12 (1), November 14 (1); 1938, May 12 (2), June 12 (2), 16 (2), September 9 (2); 1939, May 2 (4), June 20 (1), July 26 (1), September 14 (1); 1940, March 25 (1); 1941, August 18 (1). Venezuela, intercepted at New York City, New York, on orchids: 1914, May 29 (1); 1915, February 2 (1); 1939, April 12 (2); 1940, February 13 (6), May 16 (1). Venezuela, intercepted at Hoboken, N. J., on orchids: 1941, April 30 (2), August 18 (1); 1942, September 28 (1); 1943, November 4 (2); 1946, May 21 (1). Venezuela, intercepted at San Juan, Puerto Rico, on orchids: 1937, July 1 (1), November 12 (1); 1938, May 6 (1); 1940, May 20 (1). Venezuela, intercepted at San Francisco, Calif., on orchid: 1936, March 30 (1). Columbia, intercepted at Washington, D. C., on orchid: 1937, May 29 (2). Colombia, intercepted at San Francisco, on orchid: 1939, August 1 (1). Brazil, intercepted at Hoboken, N. J., on *Cattleya*: 1942, September 28 (2).

Tenthecoris colombiensis, n. sp.

Figs. 9, 17

The coloration of this species is similar to that of *venezuelensis*, n. sp., except that antennal segment III is pale. The antennal segment II is longer and the male genitalia are distinct.

Male.—Body length 4.52 mm, width 2.06 mm; head with 1.16 mm, length seen from above 0.43 mm, height seen from side 0.95 mm, vertex width 0.73 mm. Rostrum surpassing apex of posterior coxa, length of segments, I:II:III:IV::0.85 mm:0.94 mm:0.24 mm:0.14 mm.

Antennae dark, base of segment I and segment III pale, length of segments, I:II:III:IV::0.59 mm:1.02 mm:0.71 mm:0.73 mm.

Male genitalia nearest *bicolor*, right paramere greatly expanded at apex, left paramere of the one-armed type also exhibited by *exitiosus* and *bicolor*. Ninth abdominal segment without tubercle at the left dorsolateral angle.

Female.—Similar to male, body length 5.16 mm, width 2.32 mm; width of head across eyes 1.2 mm, width of vertex 0.73 mm. Length of antennal segments, I:II:III:IV::0.6 mm:1.0

mm:0.68 mm:0.77 mm. Segment II not distinctly shorter than that of male.

Type material.—Holotype: Male, Colombia, intercepted at Washington, D. C., October 7, 1937, on *Cattleya*, U.S.N.M. no. 58159. Allotype: Female, same data, November 14, 1936. Paratypes: Same data, May 28, 1937 (4). Same data, October 1, 1937 (1). Same data, October 28, 1936 (1). Colombia, July 17, 1917, collected by H. E. Dietz from orchid (1). Colombia, intercepted at New York City, N. Y. (1).

Tenthecoris distinctus, n. sp.

Figs. 10, 12, 20

Male.—Body ovate, length 3.66 mm, width 1.85 mm, shining, reddish with dark on dorsum, densely clothed with fine, simple, flavous pubescence.

Head subvertical, width across eyes 0.80 mm, length seen from above 0.3 mm, height seen from side, from vertex to apex of clypeus, 0.86 mm. Vertex width 0.47 mm, slightly rounded, frons slightly convex, clypeus moderately prominent, slightly curvate, discrete from frons at base, base situated on a line connecting lower margins of eyes. Eyes seen from side reniform, occupying about one-half the height of head. Rostrum short, not reaching apex of intermediate coxa, length of segments, I:II:III:IV::0.17 mm:0.29 mm:0.14 mm:0.08 mm.

Antennae linear, inserted above apex of interior margin of eye, length of segments, I:II:III:IV::0.42 mm:0.53 mm:0.56 mm:0.55 mm, segment I constricted at base, ochraceous, fuscous at apex, II black, III and IV dark but paler than II.

Pronotum finely distinctly punctate, length 0.98 mm, width at base 1.33 mm, at apex 0.56 mm, lateral margin nearly straight, posterior margin sinuate before scutellum, humeral angle broadly rounded. Scutellum black, triangular, length 0.47 mm, width at base 0.70 mm, with a median triangular impression at base.

Hemelytra with embolar margin thickened, slightly convex, length 1.72 mm; clavus black except extreme base; corium black with exterior margin broadly reddish, red area broadened posteriorly; cuneus triangular, length 0.6 mm, width at base 0.73 mm, cuneal fracture deep, membrane hyaline, cellular area black.

Body beneath with xyphus and propleura tending to flavous. Legs moderately long, anterior and intermediate tibiae, apex of posterior

tibia and all tarsi flavous; length of posterior femur 1.12 mm, posterior tibia 1.29 mm, anterior surface of posterior femur mottled with flavous spots.

Male genitalia very distinct, right paramere long, slender, and curved, fitting left dorsal margin of ninth abdominal segment which has a spinelike process at base, apex pointed; left paramere small, knoblike, of the one-armed type; arm not spinose.

Female.—Similar to male, body length 3.78 mm, width 2.02 mm. Length of antennal segments, I:II:III:IV:0.42 mm:0.6 mm:0.56 mm:0.53 mm.

This species is not altogether characteristic of the genus. Its body form, structure of head and pronotum, and bicolourous pattern undoubtedly place it as a member of *Tenthecoris*; however, its distinctly smaller size, considerably shorter rostrum of which the segments II and III taken together are longer than one-half the length of segment II and the distinctive male terminalia set *distinctus* apart from the other species. The long spinose process of the left dorsolateral angle of the ninth abdominal segment is suggestive of *Caulotops*.

Type material.—Holotype: Male, Guatemala, intercepted at San Francisco, Calif., March 1, 1944, on *Odontoglossum bictoniense*, U.S.N.M. no. 58160. Allotype: Female, same data, on *Odontoglossum grande*. Paratypes: Same data, on *O. bictoniense* (12). Same data, on *O. grande* (2). Same data, April 13, 1944, on *Oncidium leucochilum* (2). Guatemala, intercepted at Washington, D. C., on *Ocinea oeusa*, November 10, 1937 (1). Guatemala, intercepted at New York City, N. Y., on orchids, November 9, 1935 (1). Guatemala, intercepted at New Orleans, La., on orchids, January 30, 1941 (2). Guatemala, intercepted at New Orleans on *Primavera* log, February 3, 1941 (1). Guatemala, intercepted at Washington, D. C., on *Lycaste*, October 25, 1938 (1). Guatemala, intercepted at Honolulu, T. H., July 7, 1936 (2). Mexico, intercepted at Laredo, Tex., on orchids, October 30, 1941 (2). Tamazunchale, San Luis Potosí, Mexico, intercepted at Laredo, Tex., August 10, 1946, on orchid plants (5).

Tenthecoris balloui, n. sp.

Fig. 11

This species is similar to *T. distinctus*, n. sp., in its size and length of rostrum, but can be

distinguished by the different color pattern. Dark area on corium occupying less than the inner half; the anterior margin of the dark area on hemelytra not forming a straight line. Basal dark annulation on antennal segment I more distinct. Clypeus more curvate, and apices of tarsi tending to fuscous.

Female.—Body, length 3.44 mm, width 1.98 mm. Head across eyes 0.86 mm, length, seen from above, 0.3 mm, height, seen from side, 1.08 mm; width of vertex 0.52 mm. Rostrum scarcely reaching middle of intermediate coxae, length 0.95 mm. Length of antennal segments, I:II:0.43 mm:0.65 mm (III and IV missing).

This species is named in honor of C. H. Ballou whose activities as a collector have aided greatly in increasing our knowledge of the Neotropical fauna.

Type material.—Holotype: Female, Medellin, Colombia, March 29, 1930, collected by S. and C. H. Ballou on *Cattleya gigas*, U.S.N.M. no. 58161. Paratypes: Same data (7).

Tenthecoris bicolor Scott

Figs. 3, 4, 16, 18

Tenthecoris bicolor Scott, Ent. Monthly Mag. 23: 64-66. 1886.

Judged from the source of specimens intercepted at various United States ports, this species is restricted to Brazil. The only specific locality from which *T. bicolor* has been received is Santos, São Paulo. All other specimens except one are recorded as "Brazil on cattleya." Most of these were intercepted at Hoboken.

There is considerable variation among the specimens of different series, but since the exact locality of origin is not known it is not possible to know if this variation is correlated with geographical distribution. The degree of variation may be seen by comparing Figs. 3 and 16 with 4 and 18. The former, from "Santos," represent the form accepted here as typical since it seems to agree most closely with Scott's original description; length 4.5 mm. The latter figures represent a slightly smaller and lighter form; length 4.0 mm. One specimen bears determination labels as follows: "Spec. typ. *Eccritotarsus orchidearum* Reut." and "*Tenthecoris bicolor* Scott O. M. Reuter det." This is a female specimen as large as the largest examples among the 33 specimens studied. The reddish margins of the hemelytra are wider and more discrete than

in the other specimens while the dark portion of the corium and clavus lacks the pronounced metallic blue reflection exhibited by typical form. The median line of the scutellum which is marked with reddish to the apex, is also unusual even for a teneral specimen. It seems very likely that this specimen represents a distinct species, in which case Reuter's name *orchid-earum* will have to be restored. The final decision in this matter must wait study of male examples.

Type material.—Not seen. Should be in the British Museum (Natural History), London. Described from "specimens" taken alive in England "on leaves of an orchid from Bahia."

***Tenthecoris vestitus* (Distant), n. comb.**

Figs. 8, 21

Ecritotarsus vestitus Distant, Biologia Centrali-Americana, Rhynchota, Hemipt.-Heteropt., 1: 284, pl. 28, fig. 2. 1884.

Twenty-five specimens of this species have been studied. Of these, 24 were intercepted on Orchidaceae originating in Guatemala. One specimen indicates Nicaragua as locality of origin. The interceptions were made at the ports of San Francisco, Calif., New York, N. Y., Hoboken, N. J., and Washington, D. C. Besides "on orchids," *Laelia superbiens* and *Oncidium* sp. have been reported as host plants.

The species shows considerable size variation, ranging from 3.75 mm to 5.10 mm within the same sex (♂).

Type material.—Not seen; should be located in the British Museum (Natural History), London. Described from "Guatemala, Pantaleon." Number of specimens not indicated.

***Tenthecoris exitiosus* (Distant)**

Figs. 1, 15

Ecritotarsus exitiosus Distant, Ent. Monthly Mag. 25: 202. 1889.

Tenthecoris exitiosus, Costa Lima, Orquidea 4 (31): 100. 1942.

Fifty specimens of this species have been examined. With the exception of two specimens collected at Port of Spain, Trinidad, February 20, 1895, by T. J. Potter, on orchids, all bear labels indicating "Colombia" as country of origin. The specimens have been intercepted at the ports of Washington, D. C., San Francisco, Calif., and Hoboken, N. J., with the exception of two taken at "Medellin, Colombia," March

29, 1930, by S. and C. H. Ballou, on *Cattleya gigas*. Several of the intercepted specimens also bear labels indicating *Cattleya gigas* as a host plant. The remainder refer either to "*Cattleya* sp." or "orchids."

This is a strikingly distinct species having the hemelytra and corium, with the exception of a narrow basal area, black with metallic-blue reflections. Pronotum and head orange-red; apex of the hind femora, hind, middle, and apical fourth of fore tibiae black. Apical half of tylus black; two basal segments of antennae black, apical two white.

Length varies in specimens at hand from 3.75 mm to 4.9 mm.

Type material.—Not seen. Should be in the British Museum (Natural History), London. Described from "some specimens" originating in the "Botanical Gardens at Trinidad," where they were reported as doing much damage.

***Tenthecoris generosus* (Stål)**

Ecritotarsus generosus Stål, Stettin Ent. Zeit. 7 (7-9): 323. 1862.

Tenthecoris generosus, Reuter, Zeitschr. Wiss. Insektenbiol. 3: 253. 1907.

No examples of this species have been studied. Stål's description indicates that the second antennal segment of this species is unusually long. Reuter also mentioned this structure, though it is not known that he saw Stål's type specimen. Distant's illustration of the type specimen (2, p. 284, tab. 22, fig. 24) indicates a superficial resemblance to *T. exitiosus*.

Type material.—Not seen. Should be in Naturhistoriska Riksmuseet, Stockholm. Described by Stål from one male specimen received from Mexico.

NOTE CONCERNING ILLUSTRATIONS

The accompanying figures of the hemelytra are intended to be accurate only so far as color pattern is concerned. These were drawn from the insect, and other details, to a considerable degree, depend upon the angle from which the wing was viewed. The claspers must also be considered as diagrammatic. In comparing claspers with these illustrations it is best to place the entire ninth segment of the abdomen in KOH until the muscle tissue is dissolved sufficiently to allow easy dissection. The claspers should then be placed in glycerin

and studied without a cover glass as it is necessary to move the parts about in order to view them in approximately the position figured.

KEY TO SPECIES

1. Rostrum scarcely reaching apices of intermediate coxae; smaller species (less than 4 mm. in length).....2
Rostrum reaching or surpassing apices of posterior coxae; larger species (more than 4 mm in length).....3
2. Dark area of corium throughout two-thirds of its length equal to or exceeding width of clavus.....*distinctus*, n. sp.
Dark area of corium equaling width of clavus only at apex of clavus.....*balloui*, n. sp.
3. Hemelytra entirely dark (except the extreme base).....4
Hemelytra with lateral margin reddish or ochraceous.....5
4. Antennal segment II about twice as long as I.
generosus (Stål)
Antennal segment II much less than twice the length of I.....*exultiosus* (Distant)
5. Tibiae dark or with dark markings.....6
Tibiae without dark markings.....8
6. Pale margin of hemelytra with greatest width usually less, never more than length of cuneal fracture (see Figs. 3 and 4).....7
Pale margin of hemelytra with greatest width exceeding length of cuneal fracture (see Figs. 5, 3, and 8).....8
7. Cuneus dark except for extreme lateral margin.....*angustimarginatus*, n. sp.
Cuneus yellowish red to reddish..*bicolor* Scott
8. Dark area on corium occupying much less than inner half of corium; pale portion of corium with sides almost parallel or gradually narrowed toward base; clypeus distinctly fuscous.....9
Dark area on corium occupying nearly inner half of corium; pale portion of corium noticeably narrowed along basal third; clypeus not distinctly fuscous.
vestitus (Distant), n. comb.
9. Basal margin of dark area on scutellum and clavus nearly on a straight line; basal mar-

gin of dark area on clavus and lateral margin of dark area on corium forming approximately a right angle.

distinguendus, n. sp.

Basal margin of dark area on clavus distinctly distad to that on scutellum, and forming, with lateral margin of dark area on corium, an obtuse angle of approximately 135°.

confusus, n. sp.

10. Antennal segment II longer than width of vertex plus an eye; segment III distinctly paler than IV.....*colombiensis*, n. sp.
Antennal segment II shorter than width of vertex plus an eye; segment III not distinctly paler than IV...*venezuelensis*, n. sp.

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